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SATURDAY, September 18, 1982

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- THREE METHODS

PRESIDENT'S RAM

PUZZLE # 2

HELP IDENTIFY GOOD ATARI SOFTWARE

(and/or bad)

FILL IN THE QUESTIONNAIRE IN THIS ISSUE

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BEGINNERS BASIC CLASS - PART 4

Our education, Linda Scott, will be conducting the final class on BASIC for beginners before our regular meeting on Saturday. The class begins at 3PM. Be sure to bring your *ATARI* Basic manuals.

Intermediate basic classes begin in October. Detail at the meeting.

Club Library will be open from 3:30 to 4:00 and after our business meeting which begins at 4:00 PM.

Be sure to look over the new literature library. A checkout system has been set up which allows MILITARI members to take material home.

All exchange newsletters may be taken out in addition to current issues of InfoWorld, SOFTLINE, Mini-Micro Systems, small systems world, Personal Computing, and Popular COMPUTING.

We also have a copie of *De Re Atari* a copie of the ATARI OS and Hardware manual available for checkout.

President's RAM

by Gary Nolan, Milatari President

First came Summerfest, then Germanfest, Irishfest and Polishfest. And now comes COMPUTERFEST. Yes, on Sunday September 19th, the first Milwaukee Computerfest will be held at 3819 W. Michigan at Noon. Members of MILATARI will be there showing the ATARI systems. So stop by and say hello.

We've gotten some response to our call for submissions to the newsletter but are still looking for program reviewers along with programming tips.

Some changes in the library are coming. Some of them will be mentioned here others at the meeting. You will be able to buy copies of disk/cassettes at the meeting to avoid having to stand in line after the meeting. Prices will be around \$3 for disks, with cassettes undecided for now. You'll still be able to stand in line and get it free if you wish, but if the lines are too long and time runs short, well. Wayne Peters has resigned as librarian for personal reasons, and we would like to take this time to thank him for the work he put into it. So we will be looking for a new librarian or two. Most clubs have a disk and cassette librarian and we will probably go to this system too. Also, most clubs do not have copyrighted software in their libraries, we do and we have some rules governing it. Donations must be the original program and documentation only. Borrowing is done on a one program per person basis. We are in contact with other groups and are in the process of exchanging copies of non copyright material, so the library will be expanding in the near future.

The VOICEBOX raffle will be discussed at the next meeting. If there is enough interest the drawing will be held at the October meeting. Chances will be \$5 each with profits going to the club fund. Those unable to attend can call me to find out if it will be held or not.

Disks are on order and should be here by the 18th. We did order extra disks which will be sold at \$19 for a box of ten.

The Department of Defense has ordered 1,370 ATARI computers. Missile Command and Star Raiders as training programs? Actually they were ordered for the education of dependents overseas.

ATARI's next computer? Rumors still abound. Latest is that ATARI will upgrade the 400 keyboard, drop the 800 and bring out a system to compete in the Comodore 64 price range. Couple this with the rumored small business machine and things get interesting.

Did anybody notice what was missing from this months Creative Computing magazine?

Remember, the programming classes meet at 3pm. This months class will continue the graphics lesson started last time.

See you on the 18th.....



'And Now Let's Access Hymn No. 635.'

THIS SPACE FOR RENT

* * *

UNCLASSIFIED ADS

(MILATARI will post ads for its members at no charge. Others \$1.00 per issue. Send ad info to newsletter editor by 1st Saturday of month)

B & W TV: Can be used as monitor only - \$10.00. Call Betty Morris at 367-5953.

SOFTWARE: MILATARI members Jim Luty and Bill Simotti are selling software at a discount to members. Call Jim at 421-3135 or Bill Simotti at 352-1790 for prices.

OSCILLOSCOPE: Heathkit model IO104 DC to 15HZ scope. New - \$350 Will sell for \$175. Call Bruce Chandler @ 1-594-3360.

FORMS: 9 1/2 X 11 - blank - 1100 sheets - \$12; DISK CASE: holds 100 diskettes - \$15 (2 only); MX80 RIBBON CARTRIDGES: - \$7, reloads - \$3; Call Dave Frazer - 542-7242 or see at September meeting

ATARI KEYBOARD INPUT -

- THREE METHODS

by Don Wilcox

Let me share with you three methods for transferring data from the keyboard to the computer. Each method has its own adventures and limitations. Since the transfer of numerical values is less complex than that of strings, this article will deal primarily with string data.

The first method uses the familiar input command. The input command is simple to program and transfers all characters keyed in as a single string in one operation to the computer and simultaneously displays the string on the screen. As a limitation, the input command can transfer no more than 3 physical lines (1 logical line) to a maximum of 113 characters per transfer.

Program one demonstrates the use of the input method by reading data into the string variable - NAME\$. Most beginning programmers are familiar with this approach. To create a string longer than 113 characters requires concatenation (hooking together) of separate strings into one large string. See page 39 in the ATARI Basic Reference Manual. After entry of the data, the RETURN key must be pressed to complete the transfer into the string variable. This approach does not allow us to examine each character as it is input to determine whether or not we wish to accept it as a valid input.

The second method uses the GET command. This requires that we open the keyboard for input the same as we would open a file in the read mode (4). As an example: OPEN #1,4,0,"K:" where "K:" is the special file name for the keyboard. This method transfers one character at a time in decimal format to the computer without the necessity of pressing the RETURN key. The data actually transferred is not the character pressed as in the input statement, but the decimal value of the character. See Appendix C in your ATARI Basic Reference Manual for a list of the decimal values associated with each character. The entry of one character at a time allows us to edit each character as it is keyed. We can thus catch and prevent illegal or undesired characters from entering our program. To create a string of more than one character using the get command requires that we concatenate the characters as they are inputted, edited and transferred into the string variable - NAME\$. This is readily accomplished by looping back to our get command until we have keyed in all the characters desired into the variable - NAME\$. This approach is demonstrated in program two which uses the get command, allows only capital letters (A through Z) as valid data, converts the decimal numbers to their alphabetic form and then stores them in the string - NAME\$

(continued)

As you are aware, most keys on the keyboard can produce different characters (capitals, lower case, graphic characters and control characters) depending on whether or not we have pressed the shift. CAP/LOWR, ATARI or ESCAPE key prior to a textual key (letters, numbers or special characters).

You may not be aware that each key on the keyboard has its own unique key code number, excluding the SHIFT, CONTROL and BREAK keys. This unique code number is not the same as the decimal numbers associated with each character as listed in Appendix C of the ATARI Basic Reference Manual.

The third method uses the fact that each of the brown keys on the keyboard when pressed transfers its own unique key code number into address 764 (decimal) in the computer memory. The value of the last key pressed remains in address 764 until a new key is pressed or we POKE a different number into the address 764. Initially, this address carries a value of 255. Page 50 in the ATARI Operating system User's Manual lists the key code numbers associated with each key on the keyboard. If you do not have a copy of this manual, there is a program at the end of this article which will allow you to print out or display each character, its decimal equivalent and its unique key code. NOTE: The status of the yellow keys on the right side of the keyboard are stored in address 53279 (decimal). We are not concerned with these keys for the purpose of this article.

The PEEK(764) method does not respond with a different key code if a combination of keys is pressed sequentially such as the ATARI key followed by a character key. It only captures the key codes of the last key pressed. If however, the SHIFT key or the CONTROL key are pressed simultaneously with a character key, a unique key code is captured for the simultaneous entry, although neither the SHIFT key nor the CONTROL key have an individual key code if pressed singly. This method does not capture a key code for a combination of keys pressed sequentially as would be true of having pressed the ATARI or CAPS/LOWR keys followed sequentially by another key. It captures only the key code of the last key pressed. This individual key code is however different for each key depending upon whether or not the computer is in shift or control mode while another key is being pressed simultaneously.

In order to determine which key was pressed, all we need do is PEEK(764). This will return the key code of the key just pressed. This method does not require us to open the keyboard as a file and does not require the pressing of the return key to transfer data to the computer. You may also note the absence of the usual keyboard "click" sound using this method. Because of the apparent randomness of the key code assignments to specific keys, this is not a readily usable approach for textual information input. It is a good approach for limited input such as a yes or no response to a question or a menu selection by inputting a number or letter to indicate your selection. This method works well for restricting acceptable data to a very few

(continued)

choices. Program three demonstrates the use of peeking location 764 as a means of reading data from the keyboard and restricting data input to only a few possibilities.

Why use this third method in preference to the first two presented? There are three reasons: (1) The return key need not be pressed to initiate the transfer process; (2) The keyboard need not be opened as a file; and (3) This method can be more selective in shielding the program from unacceptable input characters.

Run programs three, four and five. Prior to responding to the question "Are you ready, y or n?", accidentally press either the CAPS/LOWR or ATARI keys, then input your answer y or n.

You will find that programs four and five will not continue to a successful conclusion as will program three. This is due to the fact that we have only checked for a (Y or N) in the capital letter mode. The programs, four and five, will not accept (y or n) nor the reversed Y, y, N, or n. Rather than encompassing all these possible variations of "y" and "n", it is more simple to use the PEEK(764) approach which will respond correctly no matter which of the four modes is used to input the response.

For those who desire more information, read the Operating System Users Manual, especially pages 47-50. As an aside, the key code is in the first six bits of the address 764 (starting from the right side). The left is set to 1 if the control key is pressed and the second to the leftmost bit is set to 1 if the shift key is pressed.

90 REM PROGRAM ONE

100 DIM NAME\$(15):REM SETS THE MAXIMUM NUMBER OF CHARACTERS
FOR BE PUT INTO NAME\$

110 PRINT " TYPE IN A NAME, THEN PRESS RETURN":REM DISPLAYS
INSTRUCTION TO USER ON THE SCREEN

120 INPUT NAME\$:REM ? INDICATED COMPUTER IS WAITING FOR INPUT FROM
THE KEYBOARD

130 REM ONLY THE FIRST 15 CHARACTERS TYPED WILL BE PUT INTO NAME\$,
ANY OVER 15 WILL BE IGNORED, BUT NO ERROR

140 REM MESSAGE WILL BE DISPLAYED

150 PRINT NAME\$:REM NAME TYPED IN WILL BE DISPLAYED ON THE SCREEN

160 GOTO 110:REM RETURN TO INPUT REQUEST

90 REM PROGRAM TWO

100 DIM NAME\$(15)

110 OPEN #1,4,0,"K:":REM OPENS KEYBOARD IN INPUT MODE (4) SAME AS
A FILE

120 GET #1,Q:REM Q IS THE DECIMAL VALUE OF THE CHARACTER KEYED IN,
NOT THE CHARACTER ITSELF

130 REM CHR\$(Q) CONVERTS THE DECIMAL VALUE OF Q TO ITS CHARACTER
FORM FOR DISPLAY ON THE SCREEN

(continued)


```
140 IF Q<65 OR Q>90 AND Q<>155 THEN 120:REM REJECTS ALL INPUT  
EXCEPT  
    CAPITAL LETTERS AND THE RETURN KEY  
150 REM 65=A; 90=Z;  
155=RETURN KEY (RETURN KEY USED TO TERMINATE GET  
    OPERATION)  
160 ? CHR$(Q);:NAME$(LEN(NAME$ +1)=CHR$(Q):REM CHR$(Q) CONVERTS  
    DECIMAL VALUE OF Q INTO ITS CHARACTER FORM  
170 REM THEN CONCATENATES (HOOKS ON) EACH VALID CHARATER AS IT IS  
    INPUT AND ACCEPTS AS VALID  
180 IF Q<>155 AND LEN(NAME$)<15 THEN 120:REM IF THE RETURN KEY  
    HAS NOT BEEN PRESSED AND THE STRING NAME$  
190 REM IS NOT YET FULL, PROGRAM WILL RETURN TO LINE 120 FOR MORE  
    CHARACTERS TO ADD TO NAME$  
200 PRINT :PRINT NAME$:CLOSE #1  
210 NAME$="":GOTO 110:REM ERASE DATA IN NAME$ AND RETURNS TO  
    BEGINNING OF PROGRAM, PRESS RESET TO TERMINATE.
```

```
90 REM PROGRAM THREE  
100 PRINT "ARE YOU READY, Y OR N"  
110 G=PEEK(764):IF G=255 THEN 110:REM PROGRAM REMAINS AT LINE 110  
    UNTIL A KEY IS PRESSED  
120 POKE 764,255:REM RETURN LOCATION 764 TO ITS ORIGINAL NULL OR  
    EMPTY VALUE  
130 IF G<>35 AND G<>43 THEN 110:REM ONLY THE (N) OR THE (Y) KEYS  
    WILL  
    ALLOW PROGRAM TO CONTINUE. ANY OTHER  
140 REM PRESSED WILL CONTINUE TO RETURN TO LINE 110. KEY CODE FOR  
    N IS 35;  
    KEY CODE FOR Y IS 43.  
150 IF G=35 THEN PRINT "ANSWER WAS NO"  
160 IF G=43 THEN PRINT "ANSWER WAS YES"  
170 GOTO 90:REM ALLOWS PROGRAM TO RUN AGAIN. PRESS RESET TO STOP
```

```
90 REM PROGRAM FOUR  
100 DIM Q$(1)  
110 PRINT "ARE YOU READY, Y OR N?"  
115 PRINT "ENTER RESPONSE THEN PRESS RETURN"  
120 INPUT Q$:IF Q$<>"N" AND Q$<>"Y" THEN 120:REM PROGRAM REMAINS  
    AT  
    LINE 120 UNTIL EITHER A (Y) OR AN (N) IS INPUT  
130 IF Q$="Y" THEN PRINT "ANSWER WAS YES"  
140 IF Q$="N" THEN PRINT "ANSWER WAS NO"  
150 GOTO 110:REM ALLOWS PROGRAM TO RUN AGAIN. PRESS RESET TO STOP
```

```
90 REM PROGRAM FIVE  
100 OPEN #1,4,0,"K:"  
110 PRINT "ARE YOU READY, Y OR N"  
120 GET #1,Q:IF Q<>78 OR Q<>89 THEN 120:REM 78 IS DECIMAL CODE FOR
```

(continued)


```

N;89 IS FOR Y
130 IF Q=78 THEN PRINT "ANSWER WAS NO"
140 IF Q=89 THEN PRINT "ANSWER WAS YES"
150 GOTO 110;PRESS RESET TO STOP PROGRAM

```

```

5 REM DON WILCOX  AUGUST 25, 1982
6 REM CREATE A TABLE OF CHARACTERS, DECIMAL CODES AND KEY CODES
  FOR ATARI

```

```

                                10 LPRINT "CHARACTER DECIMAL  KEY"
20 LPRINT "    CODE    CODE    CODE"
30 LPRINT "    ----    ----    ----"
100 OPEN #1,4,0,"K:":DIM Q$(3)
110 ? "PRESS A KEY":?
120 N=PEEK(764):IF N=255 THEN 130
130 GET #1,Q:POKE 764,255:Q$=CHR$(Q):IF Q=27 OR Q=155 OR Q=127
THEN Q$=" "
131 IF Q=27 THEN Q$="ESC"
132 IF Q=127 THEN Q$="TAB"
133 IF Q=155 THEN Q$="RET"
134 IF Q=32 THEN Q$="SPA"
135 ? "CHARACTER DECIMAL KEY"
137 ? "    CODE    CODE    CODE"
138 ? "    ----    ----    ----"
140 ? "    ";Q$;"    ";Q$;"    ";Q$;"    ";N
150 LPRINT "    ";Q$;"    ";Q$;"    ";Q$;"    ";N
160 GOTO 110
170 REM DELETE LINES 10, 20, 30 AND 150 IF YOU DO NOT HAVE A
    PRINTER

```

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CONTEST!!

BRAIN PUZZLE

This feature will appear in the newsletter each month. Monthly, a new puzzle will be presented along with a review of the previous months' puzzle.

The puzzles are selected to show you ways to have fun and learn with your computer. The proper method to solve these puzzles requires the writing of a computer program to find the answer. To further encourage you, we will award the first winner of each contest a blank disk or tape - their choice!

What we would like (besides the right answer) is a few tidbits about how you solved the problem, such as: what language, how many statements, and how long did it take the computer to arrive at the answer.

The correct entry bearing the earliest postmark will be considered the winner. No entries accepted after midnight, September 30, 1982. All entries become the property of MILATARI. Winner will be awarded one blank disk or tape. In the event of a tie, more than one winner may be selected. Respond only by mail. No phone calls please.

Address your entry to:

MILATARI PUZZLE
P.O. Box 1191
Waukesha, WI 53187

PUZZLE # 2

THE PYRAMID OF CANNONBALLS

From a collection of 10,000 cannonballs, a square-based pyramid is built with a single cannonball on top and a square number on each layer. How many layers can be made? And how many cannonballs will be left over?

PUZZLE # 1 WINNER

Our winner with the first correct answer to puzzle # 1 is Steven Booth. The two correct answers submitted by Steven are 22 and 88.

Steven used basic BASIC. It took Steven about 20 minutes to compute the answers manually and 2 seconds for his ATARI.

Congratulations Steve - Pick up your tape or diskette at the

next meeting.

BASIC SOLUTION:

```
10 M=0
15 N=0
20 K=(N+8)/6
30 IF K<>INT(K) THEN 50
40 PRINT N
50 M=M+1
60 N=11*M
70 IF N>100 THEN 90
80 GOTO 20
90 END
```

FORTRAN SOLUTION

Columns: 12345 6 7

```
INTEGER M,N
REAL K
M=0
N=0
2 K=(N+8.)/6.
IF (K.NE. AINT(K)) GOTO 5
WRITE(6,100)N
100 FORMAT(014)
5 M=M+1
N=11*M
IF (N.GT.100)STOP
GO TO 2
END
```

* * *

NEWSLETTERS

Newsletters which are received from other groups will be cataloged in our club library and are available for any member at our monthly meeting. We are currently receiving newsletters from:

the Atari Computer Association of Orange County, Ca.
the Madison Wisconsin Atari Users
the Michigan Atari Computer Enthusiasts
the West Valley ATARI Users Group
the Twincity ATARI Interest Group
the ATARI Computer Club of Toledo
the Waterloo ATARI users Group
the Jersey ATARI Computer Group
the Birmingham Atari Group
the Austin Atari Computer Enthusiasts

We thank those groups for their participation in newsletter exchange.